

DRIVING PERFECTION



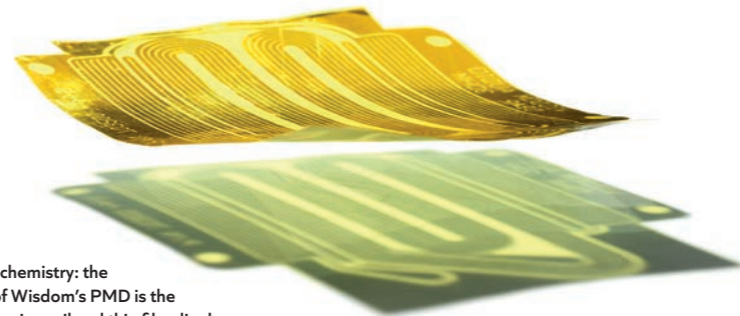
Wisdom Audio's unique speaker design proposition is custom made for CI says International Sales Manager Barry Pim.

Rapid technological advance has gifted your business with the power to deliver astonishing performance and intuitive ease of use to your customers. But amid the dazzling science of the metaverse, AI, M2M comms and IoT, a technology you install every day has remained virtually unchanged from the moment it was patented on 2nd April 1929.

Loaded into on-wall, in-wall and freestanding cabinets, headphones, even buds, Kellogg and Rice's electroacoustic transducer, otherwise known as the 'dynamic moving coil' loudspeaker, has been making waves ever since, with varying degrees of success. There's no doubting its popularity: it's widely understood, easy to adapt for specialised frequency roles, relatively cheap to produce and for most applications sounds just great. But for a more tenacious breed of high-end speaker engineer, this goody bag of virtues is simply not great enough. In answer to the question "can we do better?", Wisdom Audio's design team has refined the 'Planar Magnetic Driver', or PMD, to become the epitome of ultra-discreet high performance transducers: the perfect choice, in fact, for elite screening rooms, home cinema and media rooms.

A THIN FILM OF RADIATING GOODNESS

This is because PMD tech hands you the means to integrate extraordinary sound for your best customers. By chemically bonding the voice coil track to a thin-film diaphragm of high temperature resistant polyimide, surrounded by the extraordinary force of tiny rare-earth neodymium magnets, Wisdom's proprietary PMD design combines the virtues of electrostatic drivers and ribbons (detail, low distortion, and even, controlled dispersion), with the strengths of dynamic speakers (high reliability, power handling, dynamic range and sensitivity). In other words, Wisdom's magical PMD has transformed the capabilities of traditional driver design, removing compromise while boosting detail, dynamics, accuracy and power handling across an extended range from beyond 20kHz down to an unprecedented 80Hz (in the flagship LS4 model). What's more, when used together in a tall column speaker, Wisdom's large-scale Planar Magnetic Drivers are able to generate the fabled qualities of Line Source design.



Magical chemistry: the engine of Wisdom's PMD is the union of voice coil and thin film diaphragm

LINE SOURCE V POINT SOURCE

Most speakers in the world are Point Sources, whose sound expands away from the speaker as an ever-enlarging sphere. This happens because the vibrating diaphragm is small compared to the sound waves it is producing. Sound from a Point Source spreads out like ripples from a pebble thrown into a pond, but in three dimensions. It thins out as it expands, reflecting back into the space from the room boundaries so that delayed versions of the original signal collide with the direct sound at the listening position. It's an audio mashup, and the reason why enclosed spaces are an earache for audio designers.

Line Source speakers make everything simpler. The physics says that when a vibrating diaphragm approaches the size of the sound wave it is producing, the sound becomes more directional, radiating away from the source in the shape of an expanding cylinder. Sound from a line source advances like a tide, rather than a 3D spray of frequencies. Aided by this focus, the

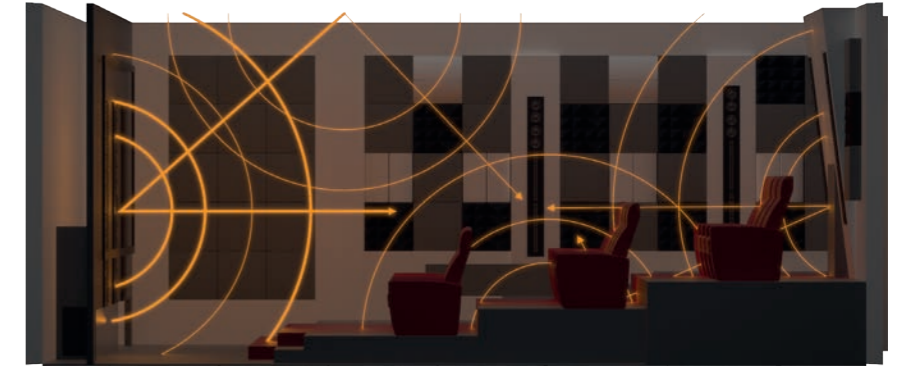
sound from a Line Source doesn't 'thin out' nearly as fast as sound from a Point Source speaker. In fact, Line Sources deliver half the propagation loss of conventional Point Sources, generating a more uniform SPL throughout the space and a generous 'sweet-spot' of level and frequencies. Front to back, side to side, each listener is served with the same dynamic, wideband audio experience. And since Wisdom's Line Source PMDs deliver sound into a space more efficiently, effortlessly high intelligibility and level are achieved with less strain on the electronics. Counter intuitively, greater 'power over distance' does not mean ear-splitting volumes close to the speakers. It's a physical phenomenon unique to Line Source design. Best of all, vertically controlled dispersion eliminates those damaging floor and ceiling reflections where human auditory senses are most acutely focussed, so the audience hears more of the speaker and less of the room. With Line Source, everything becomes easier and significantly clearer. This makes Line Source the go-to technology for the best cinema and media room applications.

IS LINE SOURCE THE SAME AS LINE ARRAY?

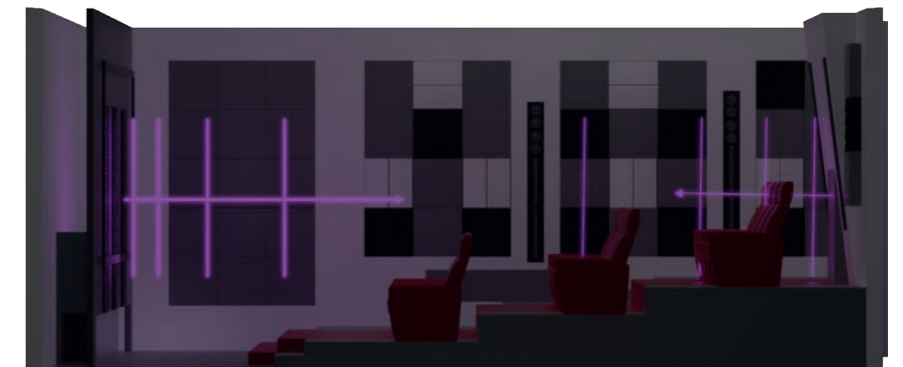
Perhaps with the best intentions, some of the marketing available has blurred the distinction between Line Source and Line Array, but they are not the same. Being tall and thin, a Line Array may look like a Line Source, but rather than use a limited number of large wideband drivers, Line Arrays squeeze multiple Point Source speakers into a column (like the PA towers at a rock festival). By virtue of its size and shape, a Line Array tries to mimic the dispersion of a Line Source, but instead multiplies the distortion caused by many Point Source speakers interfering with each other and room boundaries. Sound from rivals deploying a Line Array of multiple AMT or moving coil drivers for instance will suffer comb filtering: the sound will be chopped up by many tiny delays. In free air within large commercial venues, Line Array towers are a great solution because comb filtering effects are less apparent at large distances, but within an enclosed space such as a cinema room, it's another audio mashup. As we've seen, Line Source is a wholly different technical ball game, so when a manufacturer claims to have developed a Line Source product, it's almost certainly something else.

SPACE CRAFT

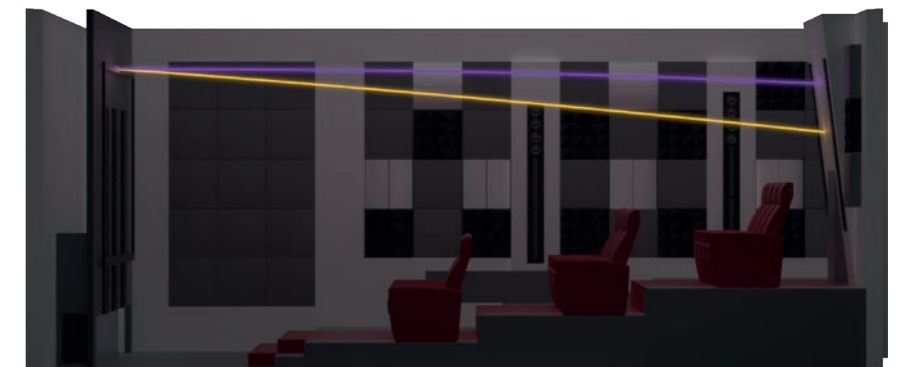
So why isn't every speaker made for Line Source dispersion? Two big reasons: practicality and technical complexity. To target the benefits of Line Source where they matter most, above 160Hz, Wisdom's line source speakers are tall - around 2m. This means that in-wall, on-wall, and free-standing versions are a natural fit for LCR and stereo applications within the larger home environments, but sometimes impractical for smaller rooms - we have other designs for that.



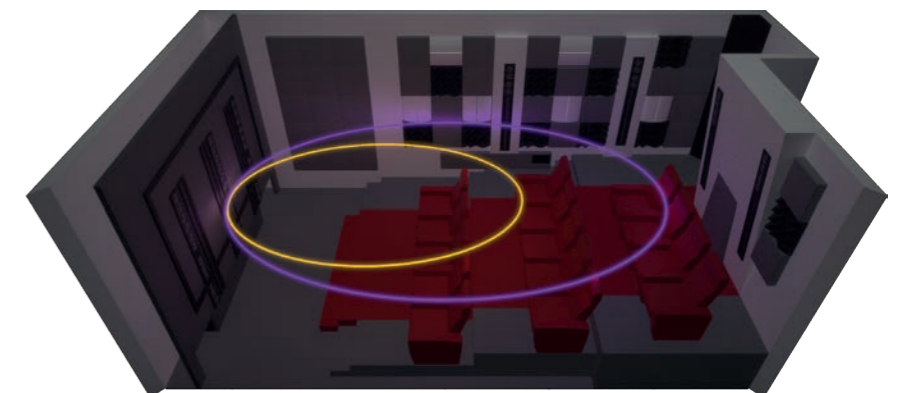
Point of confusion: Point Source propagates in all directions providing more reflected sound v direct sound



Line of clarity: Line Source propagates in a controlled vertical fashion, providing more direct sound v reflected sound



Power over distance: Line Sources have half the propagation loss of Point Sources, providing a better row to row consistency



A shared experience: Line Source provides a wider sweet spot

ESSENTIAL HOME CINEMA SUPPLEMENT: WISDOM AUDIO



Every Wisdom Audio in-wall, in-ceiling, on-wall and free-standing speaker, including the flagship LS4, L150, L75, P38, P20 and ICS7a deploys PMD technology

Then there's the rarefied engineering. It would be impossible even for a high-end brand comfortable with moving-coil drivers or maybe AMT ribbons to attempt the leap of invention necessary to devise a driver as advanced as Wisdom's ultimate technical tour de force: the large scale PMD. By way of this extraordinary breakthrough, Wisdom Audio meets the demand for outright quality, performance and exclusivity. Just look at what our largest drivers can do. For example, the towering LS4 Line Source flagship housing Wisdom's reference PMDs delivers a radiating area equivalent to as many as eleven twelve-inch moving coil woofers, and ninety-six one-inch dome tweeters, with a sensitivity of 100dB. Amazing as it may seem, a single system is capable of reproducing sound pressure levels to a staggering 130dB at four metres, satisfying the most critical music and film aficionados.

And where Line Source isn't practical, Wisdom Audio deploys matching, tonally accurate PMD tech across no fewer than twenty-six Point Source speakers for in-wall, on-wall, in-ceiling, LCR and free-standing applications. All this versatile product prowess means that in rooms of any size, Wisdom's promise to deliver 'being there' fidelity is not only viable, it's assured. What's more, because the PMD's radiating surface is inherently flat and thin, our technology is perfect for the flush installation so beloved by CI. As a custom cinema designer, you can take it to the bank!

variants, RTL can generate, for example, up to 130dB at 20Hz from the flagship STS model, 128dB at 30Hz from the single 10-inch driver inside the S110i in-wall system, and 123dB at 20Hz (enough to pressurise a small, terraced home) from twin 5x7-inch drivers within the impossibly thin (15.5cm) S90i in-wall design. Astonishing but demonstrable. As the old proverb goes, the proof is in the pudding...

THE DEEP

You'll love our bass as well. Below 150Hz, where sound is far less directional, we integrate multiple bass drivers with our Line Source modules. At these frequencies the outputs couple together to create what is effectively a single low frequency radiator with the speed to match our PMDs. But to generate natural dynamics with low distortion down to 20Hz and flat to 2dB, we needed to design something far more radical, having the ability to enhance output over the complete bandwidth of the woofer system. Wisdom's Regenerative Transmission Line (RTL)® subwoofer technology uses the acoustic output of both sides of the woofer diaphragm to drive the same internal transmission line. In effect the operation sums three acoustic outputs to deliver between six to nine dB of gain over the total pass-band, boosting efficiency and maximum output and significantly reducing cone movement and distortion. Available from our freestanding STS, SCS-2 and SAS subs and as many as six super-discreet in-wall and in-ceiling

THE POWER TO COMMUNICATE

And that's exactly what I'd love you to do. Try the pudding. Wisdom Audio can supercharge your design potential in any cinema or media room application. No other speaker brand offers you the compelling choice of pure line source and compatible point source designs, inherently slender in profile yet capable of matchless fidelity, custom made for the complete CI playbook. It's a giant leap in capability for loudspeaker technology, but in this age of dazzling science, you'll take that in your stride!

Meet Habitech at Basingstoke for the complete Wisdom Audio experience.

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Wisdom's Regenerative Transmission Line (RTL) tech can generate 123dB at 20Hz from the twin 5x7-inch drivers inside the super-thin S90i in-wall design

